Access DB# 72332

SEARCH REQUEST FORM

Paper #5 Attach.

Scientific and Technical Information Center

Requester's Full Name: Bronwen Loeb Examiner #: 78225 Date: _____
Art Unit: 1636 Phone Number 30 605-1197 Serial Number: 09/894,423
Mail Box and Bldg/Room Location: 11D-16 Results Format Preferred (circle): PAPER DISK E-MAIL
11E-12

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): Chiarello et al

Earliest Priority Filing Date: June 28, 2001

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

Please do a chemical structure search on the linkers in Tables 1, 2 and 3.

Keywords: oligonucleotide
solid support or solid phase
label or (the actual label names in Tables 1, 2 and 3)
esp. rhodamine, fluorescein

Attached: copy of Claims, Tables 1, 2 and 3

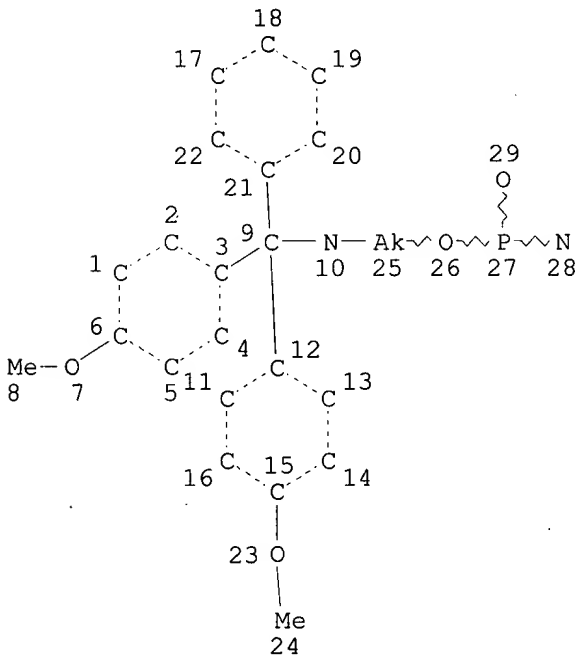
Point of Contact:
Toby Port
Technical Info. Specialist
CM1 6A04
703-308-3534

****

STAFF USE ONLY	Type of Search		Vendors and cost where applicable	
Searcher:	NA Sequence (#)		STN	196
Searcher Phone #:	AA Sequence (#)		Dialog	
Searcher Location:	Structure (#)	1	Questel/Orbit	
Date Searcher Picked Up:	Bibliographic		Dr.Link	
Date Completed: 8/15/02	Litigation		Lexis/Nexis	
Searcher Prep & Review Time: 20	Fulltext		Sequence Systems	
Clerical Prep Time:	Patent Family		WWW/Internet	
Online Time: 50	Other		Other (specify)	

PTO-1590 (8-01)

```
=> file reg; d stat que l9
FILE 'REGISTRY' ENTERED AT 15:00:46 ON 15 AUG 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 American Chemical Society (ACS)

STRUCTURE FILE UPDATES:   14 AUG 2002  HIGHEST RN 443957-06-0
DICTIONARY FILE UPDATES:  14 AUG 2002  HIGHEST RN 443957-06-0

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Calculated physical property data is now available.  See HELP PROPERTIES
for more information.  See STNote 27, Searching Properties in the CAS
Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf


L7                STR
```




```
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS  29

STEREO ATTRIBUTES: NONE
L9            3 SEA FILE=REGISTRY SSS FUL L7

100.0% PROCESSED     83 ITERATIONS                    3 ANSWERS
SEARCH TIME: 00.00.02
```

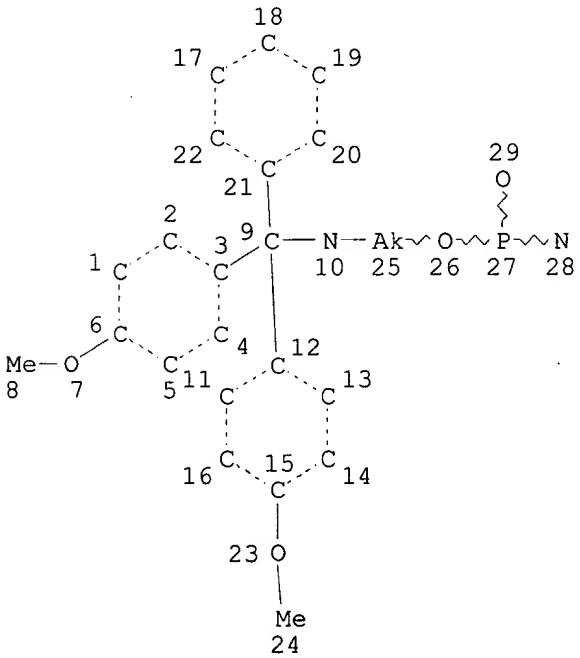
```
=> file caplus; d que l10
FILE 'CAPLUS' ENTERED AT 15:01:01 ON 15 AUG 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)
```


FILE COVERS 1907 - 15 Aug 2002 VOL 137 ISS 7
FILE LAST UPDATED: 14 Aug 2002 (20020814/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

L7 STR



NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS 29

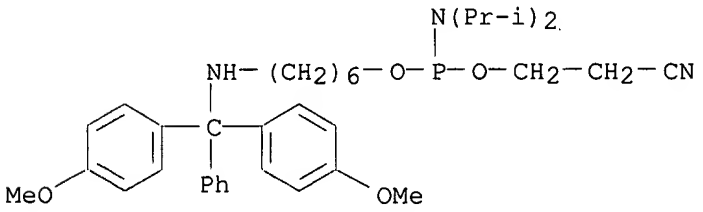
STEREO ATTRIBUTES: NONE
L9 3 SEA FILE=REGISTRY SSS FUL L7
L10 6 SEA FILE=CAPLUS ABB=ON PLU=ON L9

=> d ibib abs hitstr l10 1-6

L10 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1997:155072 CAPLUS
DOCUMENT NUMBER: 126:235533
TITLE: Versatile Linker Chemistry for Synthesis of 3'-Modified DNA
AUTHOR(S): Lyttle, Matthew H.; Adams, Howard; Hudson, Derek; Cook, Ronald M.
CORPORATE SOURCE: Biosearch Technologies Inc., San Rafael, CA, 94903, USA
SOURCE: Bioconjugate Chemistry (1997), 8(2), 193-198
CODEN: BCCHES; ISSN: 1043-1802
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A general method is described for the solid phase supported synthesis of DNA contg. 3'-terminal phosphodiesters modified with linkers bearing either amino, thiol, or hydroxyl groups. These products are all made from a common intermediate, obtained by the reaction of trimellitic anhydride chloride with aminopropyl CPG. The anhydride-derivatized support was then reacted with three appropriate bifunctional spacers, giving DMT-protected hydroxyl solid supports bearing the masked functionality as an ester, amide, or thio ester. DNA synthesis was then performed, followed by ammonia cleavage and deprotection, giving the hydroxyl-, amino-, or thiol-functionalized DNA 3'-phosphate diesters, resp. Test mononucleotides synthesized with each of the new supports were identical with control mononucleotides made with 5'-immobilized nucleosides and alkyl hydroxyl, alkyl amino, and alkyl thio phosphoramidites. The new supports were then used to prep. several 3'-modified oligonucleotides, which were characterized by gel electrophoresis, HPLC, and MALDI mass spectroscopy. The amino- and thiol-functionalized DNAs were conjugated with chromophores, and purifn. of these products was facilitated by use of reversed-phase cartridges.

IT **116919-15-4**
RL: RCT (Reactant); RACT (Reactant or reagent)
(versatile linker chem. for 3'-modified DNA synthesis)
RN 116919-15-4 CAPLUS
CN Phosphoramidous acid, bis(1-methylethyl)-, 6-[[bis(4-methoxyphenyl)phenylmethyl]amino]hexyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)

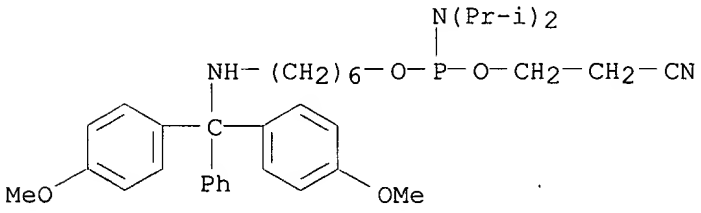


L10 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1994:500749 CAPLUS
DOCUMENT NUMBER: 121:100749
TITLE: Light-generated oligonucleotide arrays for rapid DNA sequence analysis
AUTHOR(S): Pease, Ann Caviani; Solas, Dennis; Sullivan, Edward J.; Cronin, Maureen T.; Holmes, Christopher P.; Fodor, Stephen P. A.
CORPORATE SOURCE: Affymetrix, Santa Clara, CA, 95051, USA
SOURCE: Proc. Natl. Acad. Sci. U. S. A. (1994), 91(11), 5022-6
CODEN: PNASA6; ISSN: 0027-8424
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In many areas of mol. biol. there is a need to rapidly ext. and analyze genetic information; however, current technologies for DNA sequence anal. are slow and labor intensive. The authors report here how modern photolithog. techniques can be used to facilitate sequence anal. by generating miniaturized arrays of densely packed oligonucleotide probes. These probe arrays, or DNA chips, can then be applied to parallel DNA hybridization anal., directly yielding sequence information. In a preliminary expt., a 1.28 .times. 1.28 cm array of 256 different octanucleotides was produced in 16 chem. reaction cycles, requiring 4 h to complete. The hybridization pattern of fluorescently labeled oligonucleotide targets was then detected by epifluorescence microscopy. The fluorescence signals from complementary probes were 5-35 times stronger than those with single or double base-pair hybridization mismatches, demonstrating specificity in the identification of complementary sequences. This method should prove to be a powerful tool for rapid investigations in human genetics and diagnostics, pathogen detection, and DNA mol. recognition.

IT **116919-15-4**
RL: RCT (Reactant)
(coupling reaction of, with methyl-nitropiperonyloxycarbonyl-N-acyl deoxyribonucleoside, for octadeoxyribonucleotide combinatorial library prepn. using photolithog.)

RN 116919-15-4 CAPLUS
CN Phosphoramidous acid, bis(1-methylethyl)-, 6-[[bis(4-methoxyphenyl)phenylmethyl]amino]hexyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)



L10 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1994:126942 CAPLUS
DOCUMENT NUMBER: 120:126942
TITLE: Probes and method for simultaneous detection of different DNA sequences
INVENTOR(S): Grossman, Paul David; Fung, Steven; Menchen, Steven Michael; Woo, Sam Lee; Winn-Deen, Emily Susan
PATENT ASSIGNEE(S): Applied Biosystems, Inc., USA

SOURCE: PCT Int. Appl., 84 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9320239	A1	19931014	WO 1993-US3229	19930402
W: JP				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5470705	A	19951128	US 1992-866018	19920407
EP 635069	A1	19950125	EP 1993-912131	19930402
EP 635069	B1	19971029		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 08504082	T2	19960507	JP 1993-517768	19930402
JP 2701092	B2	19980121		

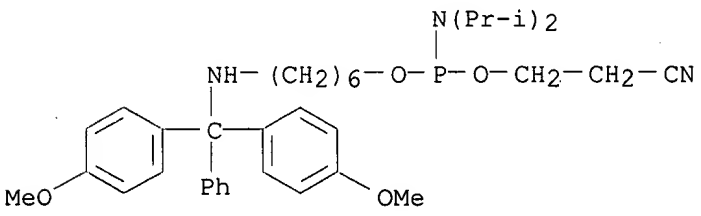
PRIORITY APPLN. INFO.:
US 1992-862642 19920403
US 1992-866018 19920407
US 1992-973118 19921106
WO 1993-US3229 19930402

AB A method for simultaneous detection of .gtoreq.1 regions in a target polynucleotide is described. A plurality of different probe pairs are added to the target polynucleotide, each probe pair including 2 probes which are complementary to adjacent portions of a selected target sequence in the target polynucleotide. In each probe pair, one of the probes contains a non-polynucleotide polymer which imparts a distinctive electrophoretic mobility in a sieving matrix to the assocd. probe pair when the probe pairs are ligated. The other probe of the probe pair contains a detectable reporter label. After the probe pairs are hybridized to the target polynucleotide, the pairs hybridized to adjacent target sites are ligated. The ligated probe pairs are then released from the target polynucleotide and sepd. electrophoretically in a sieving matrix or chromatog. Two oligonucleotides designed to span the F508 region of the cystic fibrosis gene, one conjugated to an ethylene oxide polymer and the other conjugated to a fluorescent dye were prepd. This probe pair was used with a probe pair complementary to the same region of the cystic fibrosis gene on the opposite strand for ligase chain reaction detection of the cystic fibrosis mutation.

IT **116919-15-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction of, in prepn. of polyethylene oxide-oligonucleotide conjugate for ligase chain reaction)

RN 116919-15-4 CAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 6-[[bis(4-methoxyphenyl)phenylmethyl]amino]hexyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)



L10 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2002 ACS

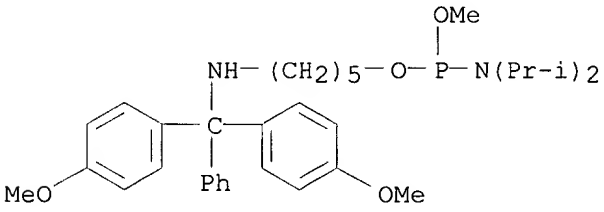
ACCESSION NUMBER: 1991:608442 CAPLUS
DOCUMENT NUMBER: 115:208442
TITLE: Introduction of 5'-terminal amino and thiol groups into synthetic oligonucleotides
AUTHOR(S): Gaur, R. K.
CORPORATE SOURCE: Dep. Chem., Univ. Delhi, Delhi, 110 007, India
SOURCE: Nucleosides Nucleotides (1991), 10(4), 895-909
CODEN: NUNUD5; ISSN: 0732-8311
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 115:208442

AB Oligonucleotides terminating in a 5'-primary amine group are synthesized using solid phase phosphoramidite chem. The 5'-terminal amine group in the deprotected oligonucleotide is further derivatized with N-succinimidyl-3-(2-pyridyldithio) propionate followed by treatment with dithiothreitol to produce 5'-thiol terminated oligonucleotides. Introduction of 5'-thiol group is further confirmed by reading the absorbance of the released chromophore, pyridine-2-thione at 343 nm; .epsilon.343 = 8080/M.

IT **136852-11-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction of, in synthesis of oligonucleotides)

RN 136852-11-4 CAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 5-[[bis(4-methoxyphenyl)phenylmethyl]amino]pentyl methyl ester (9CI) (CA INDEX NAME)



L10 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1989:8304 CAPLUS
DOCUMENT NUMBER: 110:8304
TITLE: The preparation and application of functionalized synthetic oligonucleotides: III. Use of H-phosphonate derivatives of protected amino-hexanol and mercapto-propanol or-hexanol
AUTHOR(S): Sinha, N. D.; Cook, R. M.
CORPORATE SOURCE: Chem. Div., Biosearch Inc., San Rafael, CA, 94901, USA
SOURCE: Nucleic Acids Res. (1988), 16(6), 2659-69
CODEN: NARHAD; ISSN: 0305-1048
DOCUMENT TYPE: Journal
LANGUAGE: English

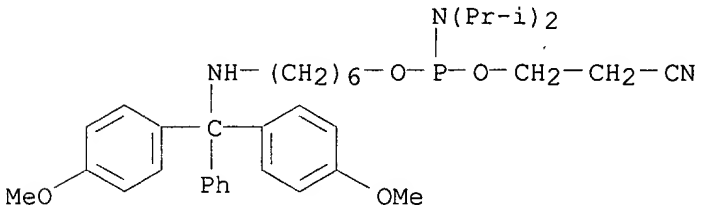
AB Syntheses of H-phosphonate salts RX(CH2)nOPH(O)O- QH+[I, R = 9-chloro-9-phenylxanthinyl, (4-MeOC6H4)2CPh, 4-MeOC6H4CPh2; X = O, S; n = 6, 3; Q = (Me2CH)2NEt, 1,8-diazabicyclo[5.4.0]undec-7-ene] of N- and S-protected alcs. such as 6-aminohexan-1-ol, 3-mercaptopropan-1-ol and 6-mercaptohexan-1-ol are described using 2-chloro-5,6-benzo-1,3,2-phosphorin-4-one as the phosphonylating agent. I, in the presence of pivaloyl chloride or adamantoyl chloride as an activator, were coupled to the 5'-end of synthetic oligonucleotides on solid supports to produce amino or thio-linked oligonucleotides. Following deprotection and purifn., fluorescent dyes, biotin derivs. and poly-L-lysine-maleimide were

sep. attached to the functionalized oligonucleotides. Identical derivatized oligomers were obtained with cyanoethyl-N,N-diisopropylamidite chem. using R(CH2)nOP(OCH2CH2CN)N(CHMe2)2 (R, n = same as above).

IT **116919-15-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction of, with oligonucleotide)

RN 116919-15-4 CAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 6-[[bis(4-methoxyphenyl)phenylmethyl]amino]hexyl 2-cyanoethyl ester (9CI) (CA INDEX NAME)



L10 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1987:440272 CAPLUS
DOCUMENT NUMBER: 107:40272
TITLE: Compositions and methods for functionalizing nucleic acids
INVENTOR(S): Snitman, David L.
PATENT ASSIGNEE(S): AMGEN, USA
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 8607363	A1	19861218	WO 1986-US1290	19860613
W: JP				
RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
US 4762779	A	19880809	US 1985-744508	19850613
IL 79111	A1	19910916	IL 1986-79111	19860612
EP 224578	A1	19870610	EP 1986-904012	19860613
EP 224578	B1	19900816		
EP 224578	B2	19941109		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
JP 62503099	T2	19871210	JP 1986-503417	19860613
JP 2534247	B2	19960911		
AT 55608	E	19900915	AT 1986-904012	19860613
CA 1303526	A1	19920616	CA 1986-511560	19860613

PRIORITY APPLN. INFO.:
US 1985-744508 19850613
EP 1986-904012 19860613
WO 1986-US1290 19860613

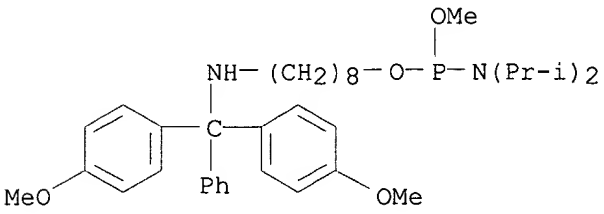
AB A method for 5'-labeling polynucleotides undergoing solid phase synthesis involves condensation of a phosphoramidite of an .omega.-hydroxyamine with a solid support-bound polynucleotide. Thus, a soln. of 0.76 mmol (Me2CH)2NEt and 0.76 mmol [(Me2CH)2N]PClOMe in CH2Cl2 was added to a soln. of 0.72 mmol HO(CH2)8NHDMT (DMT = dimethoxytrityl) and the mixt. was stirred at 25.degree. for 40 min to give (Me2CH)2NPOMe[O(CH2)8NHDMT], which was coupled by the phosphoramidite method to a polynucleotide

5'-p-ACCGAATGCTCCTACAACAAGTCTC-3' bound to a solid support.

IT **109055-40-5**
RL: RCT (Reactant)
(condensation of, with solid support-bound polynucleotide)

RN 109055-40-5 CAPLUS

CN Phosphoramidous acid, bis(1-methylethyl)-, 8-[[bis(4-methoxyphenyl)phenylmethyl]amino]octyl methyl ester (9CI) (CA INDEX NAME)



=> file caold; d que nos l11
FILE 'CAOLD' ENTERED AT 15:01:38 ON 15 AUG 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907-1966
FILE LAST UPDATED: 01 May 1997 (19970501/UP)

This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

This file supports REG1stRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

L7 STR
L9 3 SEA FILE=REGISTRY SSS FUL L7
L11 0 SEA FILE=CAOLD ABB=ON PLU=ON L9

=> file home
FILE 'HOME' ENTERED AT 15:01:43 ON 15 AUG 2002

STIC-ILL

Mic only

From: Loeb, Bronwen
Sent: Friday, August 16, 2002 10:17 AM
To: STIC-ILL
Subject: ILL order 09/894,423

Bronwen Loeb, PhD
AU 1636
703-605-1197
CM1 11D-16
Mailbox 11E-12

Appln 09/894,423

Lyttle et al (1997) Bioconjugate Chemistry 8(2): 193-198

Pease et al (1994) Proc. Natl. Acad. Sci. USA 91(11): 5022-5026

Gaur (1991) Nucleosides Nucleotides 10(4): 895-909

Sinha et al (1988) Nucleic Acids Research 16(6): 2659-2669